

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (CURRENTLY AMENDED) A method of segmenting acoustic data for use in a speech recognition process, comprising:
 - receiving frames of acoustic data;
 - determining cepstral coefficients for each of the received frames of acoustic data;
 - [[and]]
 - determining a number of peaks in the cepstral coefficients for each received frame of acoustic data; and
 - segmenting the received frames of acoustic data based on the determined number of peaks in the cepstral coefficients.
2. (CANCELED)
3. (CANCELED)
4. (ORIGINAL) The method of claim 2, further comprising:

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

comparing a first number of peaks in the cepstral coefficients of a first one of the received frames with a second number of peaks in the cepstral coefficients of at least a second one of the received frames, wherein the segmenting of the received frames of acoustic data is further based on the comparison of the first and second number of peaks.

5. (ORIGINAL) A speech recognition system, comprising:

an acoustic front end configured to:

receive frames of acoustic data,

determine cepstral coefficients for each of the received frames of acoustic data; and

a processing unit configured to:

determine a number of peaks in the cepstral coefficients for each of the received frames of acoustic data,

compare a first number of peaks in the cepstral coefficients of a first one of the received frames with a second number of peaks in the cepstral coefficients of at least a second one of the received frames, and

segment the received frames of acoustic data based on the comparison.

6. (CURRENTLY AMENDED) A computer-readable medium containing instructions for controlling at least one processing unit to perform a method of segmenting acoustic data for use in a speech recognition process, the method comprising:

receiving cepstral coefficients corresponding to frames of acoustic data; [[and]]

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

segmenting the frames of acoustic data based on the received cepstral
coefficients; and
determining a number of peaks in the cepstral coefficients corresponding to each
of the frames of acoustic data, wherein the segmenting of the frames of acoustic data is
further based on the determined number of peaks in the cepstral coefficients
corresponding to each of the frames of acoustic data.

7. (CANCELED)

8. (CANCELED)

9. (CURRENTLY AMENDED) The computer-readable medium of claim [[7]] 6,
the method further comprising:

comparing a first number of peaks in the cepstral coefficients of a first one of the
frames with a second number of peaks in the cepstral coefficients of at least a second one
of the frames, wherein the segmenting of the frames of acoustic data is further based on
the comparison of the first and second number of peaks.

10. (CURRENTLY AMENDED) A method of recognizing patterns in acoustic data,
comprising:

receiving frames of acoustic data;

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

determining ~~segmentation information~~ cepstral coefficients corresponding to the received frames of acoustic data;

determining a number of peaks in the cepstral coefficients for each received frame of acoustic data;

determining at least one weighting parameter based on the determined ~~segmentation information~~ number of peaks in the cepstral coefficients; and

recognizing patterns in the received frames of acoustic data using the at least one weighting parameter.

11. (CANCELED)

12. (ORIGINAL) The method of claim 10, further comprising:

determining, based on the frames of acoustic data, recognition hypothesis scores using a Hidden Markov Model.

13. (ORIGINAL) The method of claim 12, further comprising:

modifying the recognition hypothesis scores based on the at least one weighting parameter.

14. (ORIGINAL) The method of claim 13, wherein the recognizing patterns in the frames of acoustic data further uses the modified recognition hypothesis scores.

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

15. (AMENDED) A speech recognition system, comprising:
- an acoustic front end configured to receive frames of acoustic data and determine a number of peaks in cepstral coefficients for each of the received frames,
 - a processing unit configured to:
 - determine segmentation information corresponding to the ~~received frames~~ of acoustic data determined number of peaks,
 - determine at least one weighting parameter based on the determined segmentation information, and
 - recognize patterns in the received frames of acoustic data using the at least one weighting parameter.
16. (CANCELED)
17. (CURRENTLY AMENDED) The system of claim 15, the processing unit further configured to:
- determine, based on the number of peaks in cepstral coefficients in the received frames of acoustic data, recognition hypothesis scores using a Hidden Markov Model.
18. (CURRENTLY AMENDED) The system of claim ~~[[16]]~~ 17, the processing unit further configured to:

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

modify the recognition hypothesis scores based on the at least one weighting parameter.

19. (ORIGINAL) The system of claim 17, the processing unit further configured to:

recognize patterns in the received frames of acoustic data further using the modified recognition hypothesis scores.

20. (CURRENTLY AMENDED) A method of recognizing patterns in acoustic data, comprising:

receiving frames of acoustic data;

determining first ~~segmentation information~~ cepstral coefficients corresponding to the received frames of acoustic data;

determining second ~~segmentation information~~ cepstral coefficients corresponding to the received frames of acoustic data;

determining a first number of peaks in the first cepstral coefficients and a second number of peaks in the second cepstral coefficients;

determining at least one weighting parameter based on the determined second ~~segmentation information~~ number of peaks; and

recognizing patterns in the received frames of acoustic data using the at least one weighting parameter.

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

21. (CANCELED)

22. (CURRENTLY AMENDED) The method of claim 20, further comprising:

comparing the determined first and second ~~segmentation information~~ number of peaks.

23. (CURRENTLY AMENDED) The method of claim 22, wherein the recognizing patterns in the frames of acoustic data is based on the comparison ~~of the first and second segmentation information~~.

24. (ORIGINAL) The method of claim 20, further comprising:

determining, based on the received frames of acoustic data, recognition hypothesis scores using a Hidden Markov Model.

25. (ORIGINAL) The method of claim 24, further comprising:

modifying the recognition hypothesis scores based on the at least one weighting parameter.

26. (ORIGINAL) The method of claim 25, further comprising:

re-ordering the modified recognition hypothesis scores.

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

27. (ORIGINAL) The method of claim 26, wherein the recognizing of the patterns in the frames of acoustic data further uses the re-ordered modified recognition hypothesis scores.

28. (ORIGINAL) The method of claim 25, wherein the recognizing of the patterns in the frames of acoustic data further uses the modified recognition hypothesis scores.

29. (CURRENTLY AMENDED) A speech recognition system, comprising:
means for receiving frames of acoustic data;
means for determining a first ~~segmentation information~~ number of peaks of cepstral coefficients corresponding to the received frames of acoustic data;
means for determining a second ~~segmentation information~~ number of peaks of cepstral coefficients corresponding to the received frames of acoustic data;
means for determining at least one weighting parameter based on the determined second ~~segmentation information~~ number of peaks; and
means for recognizing patterns in the frames of acoustic data using the at least one weighting parameter.

30. (CURRENTLY AMENDED) A data structure encoded on a computer readable medium, comprising:

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

cepstral coefficient data corresponding to each frame of a plurality of frames of acoustic data, the cepstral coefficient data including a number of peaks in cepstral coefficients corresponding to each frame of acoustic data; and
segmentation data indicating segmentation of the frames of acoustic data based on the cepstral coefficient data including the number of peaks.

31. (CURRENTLY AMENDED) An acoustic recognition system, comprising:
an acoustic front end configured to:
receive frames of acoustic data and determine a number of peaks of cepstral coefficients for each of the received frames;
a processing unit configured to generate, based on the determined number of peaks, end frame numbers for each phoneme or Hidden Markov Model (HMM) state contained in the received frames; and
a trainer/HMM decoder configured to use the generated end frame numbers for determining weighted scores that can be used for recognition of acoustic events contained in the received frames of acoustic data.
32. (CURRENTLY AMENDED) An acoustic recognition system, comprising:
an acoustic front end configured to receive frames of acoustic data and determine a number of peaks of cepstral coefficients for each of the received frames; and
a processing unit configured to:

PATENT
Serial Number 09/826,715
Attorney's Docket No. 00-4023

generate, based on the determined number of peaks, end frame numbers

for each phoneme or Hidden Markov Model (HMM) state contained in the
received frames of acoustic data, and

~~determining~~ determine weighted scores based on the generated end frame
numbers that can be used for recognition of acoustic events contained in the
received frames of acoustic data.